

## **LISTING OF CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A catheter device for delivering an electric pulse to a nerve, comprising

a distal region and

a proximal region,

said distal region having at least one expandable electrode and an electrode expanding means, the expandable electrode being longitudinally arranged,

said proximal region having an electrical connecting means for applying an electric pulse to the expandable electrode.

2. (Cancelled) The catheter device of Claim 1, wherein the expandable electrode is longitudinally arranged.

3. (Cancelled) The catheter device of Claim 1, wherein the expandable electrode is circumferentially arranged.

4. (Currently Amended) The catheter device of Claim 1, wherein a portion of the expandable electrode is spirally arranged.

5. (Original) The catheter device of Claim 1, having from 1-24 electrodes.

6. (Original) The catheter device of Claim 1, wherein the expandable electrode is an electrode selected from the group consisting of a wire, a basket, a strip, or a plurality of electrodes dispersed on an electrically non-conducting material.

7. (Currently Amended) The catheter device of Claim 1, wherein the expandable electrode comprises a proximal region, a central region and a distal region, and wherein when the electrode is expanded the proximal region and the central region form a first angle between about 1 and 180 degrees, and the central region and the distal region form a second angle of between about 1 and 180 degrees.
8. (Currently Amended) The catheter device of Claim 7, wherein the first and second angles are between about 90 and 180 degrees.
9. (Original) The catheter device of Claim 7, wherein the expandable electrode, when expanded, has a total length of between 1.0 and 15 cm.
10. (Original) The catheter device of Claim 7, wherein the central region is between about 0.1 and 10 cm.
11. (Original) The catheter device of Claim 1, wherein the catheter has a lumen, and the electrode expanding means comprises a rod disposed within said lumen, and wherein the rod has a distal end connected to the expandable electrode so that the catheter forms a sheath over the expandable electrode means and the rod.
12. (Original) The catheter device of Claim 1, wherein the electrode expanding means comprises an inflatable balloon.
13. (Original) The catheter device of Claim 1, wherein the electrode expanding means comprises a metallic shape memory means.
14. (Original) The catheter device of Claim 1, wherein the expandable electrode means, when expanded is at least one arcuate electrode.
15. (Original) The catheter device of Claim 1, wherein the proximal end of the catheter has a handle and a hub, wherein the hub is connected to the means of applying an electric pulse to the expandable electrode.

Appl. No. 09/980,421  
Response dated April 27, 2006  
Reply to Office Action of November 2, 2005  
Attorney Docket No. 065071-9053-01

16. (Original) The catheter device of Claim 12, wherein the balloon has at least one ridge thereon to allow the passage of fluid therearound, and wherein at least one expandable electrode is attached to said ridge.

17. (Currently Amended) A clip electrode for attachment to a nerve, comprising
- a pair of electrically non-conducting members secured together in a pivotal relation so as to form confronting jaws,
- wherein at least one electrode is attached to an electrically non-conducting member, and
- having a means for connection to an electric pulse means and
- ~~wherein~~ the electrode ~~[[is]]~~ being shaped to avoid causing crush trauma to the nerve, the electrode including a concave portion that receives the nerve and at least one flat portion.
18. (Cancelled) The clip electrode of Claim 17, wherein the electrode is concave so that the electrode contacts a nerve to avoid causing crush trauma.
19. (Original) The clip electrode of Claim 17, wherein the electrode is compressible so that the electrode contacts a nerve to avoid causing crush trauma.
20. (Original) The clip electrode of Claim 17, wherein the electrode is wire mesh or wire wool.

21. (Currently Amended) A cuff device for contacting an electrode with a nerve, comprising  
  
an electrode that conforms to a portion of a nerve to avoid causing crush trauma, the electrode being positioned in a longitudinal traversing channel of an electrically non-conductive member, and  
  
having a means for connection to an electric pulse.
22. (Cancelled) The cuff device of Claim 21, further comprising at least one electrically non-conductive member having a traversing channel and the electrode located therein.
23. (Original) The cuff device of Claim 21, wherein the electrode is a wire mesh or wire wool.

24. (Cancelled) An electrode array device for delivering a transdermal electric pulse to a nerve comprising

electrically non-conductive material having a plurality of electrodes thereon,

wherein the electrodes are electrically connected to a means of supplying an electric pulse.

25. (Cancelled) The electrode array device, further comprising a conductive composition so that the electric pulse is transferred to the skin of a human or animal.

26. (Cancelled) The electrode array device of Claim 24, wherein the electrically non-conductive material is sized and shaped for placement around a patient's neck and over the patient's vagus nerve.

27. (Cancelled) The electrode device of Claim 26, wherein the device has laterally extending members for placement around a patient's neck.

28. (Cancelled) An endotracheal tube electrode device comprising
- an endotracheal tube having an inflatable means of expanding an electrode, and
- at least one electrode thereon so that the electrode contacts the tracheal wall when the means of expanding the electrode is inflated, and
- wherein the electrode has a means for connection to an electrical pulsing means.
29. (Cancelled) The endotracheal tube electrode of Claims 28, wherein the inflatable means of expanding an electrode is a collar or balloon.
30. (Cancelled) The endotracheal tube electrode of Claim 29, wherein the balloon has a ridge and an electrode on said ridge so that the electrode contacts the tracheal wall when the collar is inflated.
31. (Cancelled) The endotracheal tube electrode of Claim 28, further comprising a plurality of electrodes.

32. (Cancelled) An endotracheal tube electrode device comprising

an endotracheal tube having at least one expandable electrode thereon, so that the electrode contacts the tracheal wall when the electrode is expanded, and

wherein the electrode has a means for connection to an electrical pulsing means.

33. (Cancelled) The endotracheal tube electrode of Claim 32, further comprising a plurality of electrodes.

34. (Cancelled) The endotracheal tube electrode of Claim 32, wherein the expandable electrode is longitudinally arranged.

35. (Cancelled) The endotracheal tube electrode of Claim 32, wherein the expandable electrode is circumferentially arranged.

36. (Cancelled) The endotracheal tube electrode of Claim 32, wherein the expandable electrode is spirally arranged.

37. (Cancelled) The endotracheal tube electrode of Claim 32, having from 2-12 electrodes.

38. (Cancelled) The endotracheal tube electrode of Claim 32, wherein the expandable electrode is an electrode selected from the group consisting of a wire, a basket, a strip, or a plurality of electrodes dispersed on an electrically non-conducting material.

39. (Cancelled) The endotracheal tube electrode of Claim 32, wherein the expandable electrode comprises a proximal region, a central region and a distal region, and wherein when the electrode is expanded the proximal region and the central region form a first angle between about 1 and 180, and the central region and the distal region form a second angle of between about 1 and 180.

40. (Cancelled) The endotracheal tube electrode of Claim 32, wherein the first and second angles are between about 90 and 180.



41. (Currently Amended) A nasogastric tube electrode comprising
- a nasogastric tube having an inflatable means of expanding an electrode and
- an electrode attached to said inflatable means ~~collar~~ so that when the inflatable means ~~collar~~ is inflated, the electrode contracts the inner surface of the esophagus, and
- a means of supplying an electric pulse to said electrode.
42. (Original) The nasogastric tube electrode of Claim 41, wherein the inflatable means of expanding the electrode is a collar or balloon.
43. (Currently Amended) The nasogastric tube electrode of Claim 41, wherein the inflatable means ~~balloon~~ has a ridge and an electrode on said ridge so that the electrode contacts the tracheal wall when the inflatable means ~~collar~~ is inflated.
44. (Original) The nasogastric tube electrode of Claim 41, further comprising a plurality of electrodes.

45. (Currently Amended) ~~[[An]]~~ A nasogastric tube electrode device comprising  
~~an endotracheal tube~~ a nasogastric tube having at least one expandable electrode thereon,  
so that the electrode contacts ~~the tracheal~~ a wall of the esophagus when the electrode is  
expanded, and

wherein the electrode has a means for connection to an electrical pulsing means.

46. (Original) The nasogastric tube electrode of Claim 45, further comprising a plurality of  
electrodes.

47. (Original) The nasogastric tube electrode of Claim 45, wherein the expandable electrode  
is longitudinally arranged.

48. (Original) The nasogastric tube electrode of Claim 45, wherein the expandable electrode  
is circumferentially arranged.

49. (Original) The nasogastric tube electrode of Claim 45, wherein the expandable electrode  
is spirally arranged.

50. (Original) The nasogastric tube electrode of Claim 45, having from 1- 24 electrodes.

51. (Original) The nasogastric tube electrode of Claim 45, wherein the expandable electrode  
is an electrode selected from the group consisting of a wire, a basket, a strip, or a plurality of  
electrodes dispersed on an electrically non-conducting material.

52. (Currently Amended) The nasogastric tube electrode of Claim 45, wherein the  
expandable electrode comprises a proximal region, a central region and a distal region, and  
wherein when the electrode is expanded the proximal region and the central region form a first  
angle between about 1 and 180 degrees, and the central region and the distal region form a  
second angle of between about 1 and 180 degrees.

53. (Currently Amended) The nasogastric tube electrode of Claim 45, wherein the first and  
second angles are between about 90 and 180 degrees.

54. (Cancelled) An apparatus for the generation of controlled intermittent asystole comprising:

(a) an interrogator means;

(b) a cardiac pacer means electrically linked to said interrogator means;

(c) a cardiac monitoring means electrically linked to said interrogator means;

(d) a pulse generator means electrically linked to said interrogator means;

(e) a means of administering an effective dose of pharmaceutical composition to a patient to prolong cardiac asystole,

wherein the means of administration is electrically linked to said interrogator means;

wherein the interrogator automatically sends a signal to the electrode and observed the response on the cardiac monitoring means to determine optimum location of the electrode.

55. (Cancelled) The apparatus of Claim 54 further comprising a manually operable switch means electrically linked to the interrogator means to control either the pulse generator means or the cardiac pacer means.

56. (Cancelled) The apparatus of Claim 54, wherein the cardiac monitoring means is selected from the group comprising an electrocardiograph, a blood pulse monitor, a blood pressure monitor and sphygmomanometer as a means of detecting and measuring cardiac vascular flow output.

57. (Cancelled) The apparatus of Claim 54, wherein the interrogator receives an electric output signal from the cardiac monitoring means and determines an optimal output electric pulse.

58. (Cancelled) The apparatus of Claim 54, wherein the manually operable switch means is a foot operated switch, a hand operated switch or a voice operated switch.

59. (Cancelled) The apparatus of Claim 54, wherein the means of delivering an electric pulse from the pulse generator means to the patient is selected from an intravenous catheter, a clip electrode, a cuff electrode, an electrode array, an endotracheal tube electrode, and a nasogastric balloon electrode.

60. (Cancelled) A method of inducing and prolonging asystole comprising the steps of::

(a) placing a catheter or tube having an expandable electrode into a blood vessel, trachea, or esophagus of a human or animal or placing a cutaneous electrode on the skin of the human or animal;

(b) positioning the electrode adjacent to the vagus nerve;

(c) administering to the human or animal a pharmaceutical composition comprising an acetylcholinesterase inhibitor,  $\beta$  - adrenogenic receptor blocker and a calcium channel blocker;

(d) stimulating the vagus nerve with an electrical signal to the electrode;

(e) monitoring the cardiac output of the human or animal;

(f) stimulating the vagus nerve with another electrical signal to the electrode;

(g) monitoring the cardiac output of the human or animal; and

(h) determining the optimum electrode stimulation to induce and prolong asystole.